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Community Emergency Health Manpower Planning

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service

Community Emergency Health Manpower Planning

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INTRODUCTION

A. PURPOSE OF THIS GUIDE

Predisaster preparations to ensure the availability and efficient utilization of health manpower in disasters are vital to the success of a community's emergency planning. To guide communities in making these preparations, this booklet presents planning principles which can be of assistance to local emergency health planners in their health manpower assessment, assignment and training.

Attack patterns and effects cannot be predicted with precision, and consequently prior planning is as important a project for the small community which *could* find itself in a disaster situation as for the larger, high-risk community. Preparation procedures described in this publication are necessarily developed around larger communities. They are, however, equally valid for any community and can be effectively applied by taking into consideration the extent of the community's resources and the probable emergency conditions it might face.

In health mobilization terms, "community" is used to refer to the smallest political subdivision that organizes separately for civil defense. In this sense, a community comprises sufficient population and other resources to warrant separate organizing. It is most often a city, a county, a combination city-county, or even several sparsely populated counties planning together.

B. PREREQUISITES FOR MANPOWER PLANNING

Because health manpower planning is only part of an overall plan, it is assumed for purposes of this guide that:

1. A community civil defense plan and organization exists.
2. An individual, hereinafter referred to as the Emergency Health Services (EHS) Chief, has been designated as responsible for planning and providing emergency health services.

3. The EHS Chief has an advisory committee representative of the major health disciplines, hospitals and voluntary health associations. This committee (referred to as the Health Resources Task Group in *Organization and Planning Guide* published by the Office of Emergency Planning, September 1962) will advise on all aspects of emergency health planning. Subcommittees may be appointed to develop plans for specific activities, such as manpower or supply management.

4. Within the framework of established emergency policy and with the help of the advisory committee, the EHS Chief has:

- a. planned a program to provide for the postattack health needs of the community under the most adverse, but still manageable, circumstances, short of a direct hit;

- b. estimated the maximum demand which may be placed on the community's health resources;

- c. estimated the health resources (manpower, facilities and materiel) available now, and likely to remain available postattack;

- d. set up the organization through which he can best direct, coordinate and control emergency health activities, and designated the key individuals who will activate and implement the program; and

- e. assigned an emergency mission to operating health organizations, e.g., individual hospitals, laboratories and the public health agencies.

DETERMINING MANPOWER RESOURCES AND REQUIREMENTS

A first step in manpower planning is to determine what the demand for health skills will be and what resources are available to meet the demand. This knowledge is basic to deciding how best to utilize available skills and the need for auxiliary manpower and training.

A. REQUIREMENTS

Officials responsible for major health programs should obtain tentative manning tables from each organizational unit. Generally three functional areas should be considered:

1. Office of the Chief

The EHS Chief would prepare a manning table for operation of central and/or zone control headquarters including such administrative services as would be needed or supplied by this office.

2. Medical Care Services

The Chief of Medical Care Services would obtain manning tables from each unit—hospital and institution—to which an emergency mission has been assigned, including the blood bank if it is operated separately from the hospitals. Manning tables should also be prepared for whatever emergency units will be established—Packaged Disaster Hospitals* (PDH's), emergency treatment stations (ETS's), mobile units, or outpatient centers. If the operation of any of these field units is assigned to a hospital as part of its emergency mission, the hospital would prepare the manning table. If the community plans to operate field units under central control, the official in charge of such operations would prepare the manning table. Staffing for outpatient care at or outside the hospital should not be overlooked. Medical manpower needs are usually expressed in terms of hospital beds, without considering the heavy outpatient load which will be generated

*Formerly called Civil Defense Emergency Hospitals.

by the application of strict standards of hospital admission and the earliest possible discharge of patients to home or nursing care.

3. Health Protection (or Public Health) Services

The Chief of Health Protection Services would obtain manning tables for laboratory services, environmental sanitation and waste control, vector control, food and drug inspection and control, and provision of safe water.

Each installation preparing manning tables should specify the hours of operation, number of shifts planned, and the number of its employees in each skills category. An employer-employee relationship does not exist between a hospital and most physicians, dentists, veterinarians, and some nurses. If a hospital wants a particular physician for a key position, it should so specify in its manning table. The requirements shown on the manning tables and the extent to which they are met by employees will be submitted to the EHS Chief for coordination with the advisory committee.

B. RESOURCES

Making an inventory of resident practitioners of major health disciplines is an accepted form of resource determination. A mere head count, however, can prove to be of limited value. To be truly useful, an inventory should be a current registry of individuals who have been given specific disaster assignments and who can be relied on for specific services.

It may be helpful to consider the actions taken by one city-county community of 900,000 population to establish a health manpower registry, which it then used as the basis for an emergency assignment file. City A's methods, proved successful through 12 years of operation, will be cited subsequently in *Examples*.

Example: Establishment of City A's Health Manpower Registry

1. City A planners agreed in advance that:

- a. the recruitment and assignment of professional and allied health personnel could be successfully accomplished only with the active support of the various professional organizations;
- b. all participating organizations should be represented on the advisory committee (18 are represented); and
- c. each participating organization should be responsible for its own recruitment program and should later advise on the assignment of its members, because this was the only way any real interest and cooperation could be obtained.

2. The president of the medical society sent a letter to each member, asking him to register. (The 95 percent response set a level of participation which has varied only slightly over the intervening years.)

3. The other organizations initiated their registration programs. (Success of the initial registration and subsequent maintenance of

EMERGENCY HEALTH SERVICE	
1. _____ NAME	5. _____ PROFESSION
2. _____ HOME ADDRESS AND ZIP CODE	6. _____ SPECIALTY (if applicable)
3. _____ OFFICE ADDRESS AND ZIP CODE	7. _____ EMPLOYER (if applicable)
4. _____ DATE OF BIRTH	8. _____ HOSPITAL AFFILIATION(S) (if applicable)
9. AVAILABILITY	
☐ I do not have emergency assignment and will accept one in the EHS	
☐ I do have an emergency assignment	
☐ In the EHS as _____	
☐ Other _____ as _____	
10. Type of Emergency Assignment preferred (check one or more in order of preference)	
☐ Administrative	as _____ at _____
☐ Medical Care	as _____ at _____
☐ Public Health	as _____ at _____
(Over)	

Front

EMERGENCY HEALTH SERVICE (Continued)	
11. MILITARY MEDICAL EXPERIENCE	
_____	From _____ To _____
_____	From _____ To _____
_____	From _____ To _____
12. PUBLIC HEALTH EXPERIENCE (If not full-time profession)	
_____	From _____ To _____
_____	From _____ To _____
_____	From _____ To _____
13. RESERVE FORCES STATUS (Check one)	
☐ None	
☐ PHS Commissioned Reserve	
☐ Armed Forces Ready Reserve	
☐ Armed Forces Standby Reserve	

Back

Figure 1. Sample Registration Card

the rosters has varied directly with the interest of the societies concerned.)

4. Responses were carded and classified as to specialty, zone of residence, office, hospital or other health organization affiliation. (Other information which would be useful would be membership in PHS Reserve or Armed Forces Ready or Standby Reserve; military medical or public health experience; and preference for assignment. The last item would apply, for instance, to a physician who, having no hospital affiliation, prefers a public health assignment. If he does request hospital assignment and the request is approved, application would be made to the hospital for emergency privileges.)

5. The classified cards were sent to the committee which had been made responsible for the recruitment and assignment service.

The sample registration card, shown in fig. 1, is adaptable for central registration or for use by the several professional organizations as an enclosure with a covering letter.

Publicity should be given the campaign to encourage registration by members of the several professions who may not have kept up membership in their organizations.

MANPOWER UTILIZATION

A. DEVELOPING POLICY

1. Analysis of Resources and Requirements

When both manning tables and registration cards are in, the EHS Chief, with the assistance of his advisory committee, will study the relationship between resources and requirements. It may be generally expected that resources will not be equal to requirements. Obvious adjustments may reduce some disparities. Manning tables may be geared more to business as usual than to austere operations. For instance, let us assume that the average expressed requirement for an operating team per 8-hour shift is two surgeons, one anesthesiologist, one circulating and one scrub nurse, and one aide. The registration cards show that there are too few surgeons to so staff the number of emergency operating rooms contemplated. Substitution of two 12-hour shifts for three 8-hour shifts and/or a dentist, veterinarian, resident or intern for the second surgeon might solve the problem.

Adherence to the principle of austere staffing, analysis of health and allied skills, and judicious distribution among administrative, medical and health protection services will further reduce disparities. Most rosters will call for the types of skills normally used, overlooking the adaptability of allied skills. Besides their suitability for medical care services, many dentists and veterinarians have public health training. Veterinarians are especially fitted for responsibilities in food inspection and food sanitation; many have training adaptable to the restoration of sanitation measures in water supply, refuse disposal and vector control. Dentists are familiar with the principles and hazards of radiation. Members of both professions may be qualified in communicable disease control. Pharmacists can render valuable services as supply or administrative officers or as laboratory or blood technicians. Optometrists and podiatrists have training adaptable to assistance in care of casualties.

Members of all disciplines, particularly those in specialty practice, should receive training which will enable them to perform all the basic functions of their own disciplines under disaster conditions.

2. Developing Assignment Formula

An assignment formula is a systematic approach to skills distribution and, if it represents a consensus of the advisory committee and is consistently applied, can prevent many subsequent conflicts and misunderstandings.

Example: City A's Assignment Formula

City A based its formula on geographical and, to the extent possible, numerical considerations. Obviously its numerical ratio, shown below, will not be obtainable or even desirable in all communities. Supply, not demand, will dictate numerical formulas.

1. Registrants were given primary and secondary assignments. Geographically, the assignments were based on the proximity of the units (fixed hospital, PDH, control headquarters, or other) to the individual's home.
2. Giving due consideration to specialized requirements, the following physician-dentist numerical formula was developed:
 - a. Fixed hospitals—1 physician per 25 beds of expanded capacity plus 3 dentists per hospital. (Hospital administrators must keep the advisory committee informed of changes in bed capacity.)
 - b. PDH—10 physicians plus 6 dentists. (See sample staffing pattern, fig. 2, recommended by the Public Health Service for the 24-hour operation of a PDH.)
 - c. ETS—4 physicians plus 6 dentists.

B. MAKING ASSIGNMENTS

In making assignments, the EHS Chief and the advisory committee should consider:

1. The risk of assigning Armed Forces Ready Reservists or PHS Reservists to key positions. The availability of Armed Forces Standby Reservists for key assignments can be determined from the individual's draft board. (The Standby Reserve is an unorganized pool composed largely of members of the reserve forces who have fulfilled their Ready Reserve obligations and have been transferred to the Standby Reserve. The Selective Service System is responsible for determining the availability of Standby Reservists for recall to active duty in time of war or national emergency. Local boards categorize reservists as available for recall to active duty, or unavailable

because of civilian occupation, extreme hardships to dependents or for other reasons.)

2. Probable extent of losses through injury or death, military draft or redeployment of personnel by higher authorities.

C. NOTIFYING REGISTRANTS

When assignment decisions are final, registrants should be notified of their assignments (or changes of assignment) either through their own associations or by EHS issuance of a civil defense assignment card. Unregistered employees of all health activities and members of hospital auxiliaries should be given emergency assignments by the parent organizations, unless they have prior disaster commitments.

D. ESTABLISHING AND MAINTAINING A CONTROL FILE

Keeping assignments current requires a control system and the attention and effort of a single individual who understands the system and its purpose, who can deal with the offices of professional organizations in keeping registration cards current (deletions, additions, changes of address) and can keep the EHS Chief or the advisory committee informed of the need to change or make new assignments.

In a large community this would be a full-time job. In smaller communities it might be handled by a responsible volunteer. In any event, the control system is the heart of the recruitment and assignment activity.

Example: City A's Control System

1. Maintenance of the assignment control system was undertaken by the City Medical Society and a full-time Executive Secretary was given responsibility for the job.
2. Assignment cards are prepared from registration records in triplicate on different colored cards.
 - a. One card is filed alphabetically in a master file. (This file contains cards on 20,000 individuals in 18 health disciplines.)
 - b. The second card is used for the primary assignment, filed by the operating unit to which the assignment was made.

Figure 2
Sample Staffing Pattern for 24-Hour Two-Shift Operation—Packaged Disaster Hospital *

Special Detail *		HOSPITAL SECTIONS														TOTAL
MONITORING — 4		ADMITTING AND SORTING	OPERATING ROOMS	WARDS	CENTRAL SUPPLY	PHARMACY	LABORATORY	X-RAY	ADMINISTRATOR'S OFFICE	MEDICAL RECORDS	COMMUNICATIONS	ENGINEERING AND MAINTENANCE	MORGUE	FOOD *	LAUNDRY *	
DECONTAMINATION — 10																
Personnel category																
Physicians *	.....	2	6	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
Dentists (and/or Veterinarians).....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Nurses, professional.....	.....	2	8	20	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34
Anesthetists (M.D. or allied medical).....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Nurses, practical.....	.....	2	8	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
Pharmacists.....	.....	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....	2
Laboratory technicians.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2
X-ray technicians.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2
Medical aides *	.....	12	6	88	14	2	2	2	4	.....	.....	.....	2	.....	.....	128
Administrators and assistants.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Maintenance engineers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Chaplains.....	.....	.....	.....	.....	.....	.....	.....	.....	3	4	.....	.....	.....	.....	.....	2
Clerks.....	.....	2	.....	.....	4	.....	2	.....	2	4	4	.....	2	2	2	24
Helpers and messengers.....	.....	2	.....	.....	16	4	2	2	2	2	4	2	2	4	4	46

c. The third card is used for the secondary assignment and also filed by operating unit. Thus each operating unit file contains both primary and secondary assignment cards, readily distinguishable by color.

3. The file is updated at least monthly. Changes in some occupational categories average 10 percent a year. Through their monthly publications or by regular report, the associations keep the secretary informed of new members (who are routinely invited to register) and of removals. Individuals notify the secretary of changes of address and requests for changes in assignments.

E. REVISING OPERATIONAL PLANS

The foregoing manpower analysis and assignment program will almost certainly require revision of some operational plans. The absence of overall manpower planning was evident, especially in the medical care area, in the limited sampling afforded by a 1962 community readiness survey. The following conditions were repeatedly noted:

1. Multihospital cities planned to use the same physician manpower simultaneously in different hospitals. Each hospital assumed (without having made assignments) that it would have the exclusive services of all physicians with staff privileges. Since many physicians practice at more than one hospital, an all-out emergency would find that about half, or less, of the doctors counted on would actually be available.

2. Certain types of institutions, such as tuberculosis sanitariums, had operating rooms but lacked sufficient surgical staff to use them effectively in an extended emergency; they also had a lower employee-patient ratio than general hospitals and could not, without augmentation, make effective use of expanded bed space which could be made available; and, finally, these institutions had no civil defense assurance that additional staff would be made available to them.

3. Some hospitals planned manifold expansion while others planned none.

F. RECRUITING AND ASSIGNING LAY SKILLS

Once assignments have been given to health and allied personnel, action may be taken to recruit lay personnel for medical, laboratory, mortuary, sanitation or food inspection assignments. Assignment files for

such workers might be centrally controlled in the EHS, maintained by a civic organization or decentralized to the operating unit.

Example: City A's Lay Recruitment Program

City A has recruited and assigned to emergency duty people in three groups of lay skills: medical aides, home nurses and feeding teams.

1. The medical aide program requires a Red Cross advanced or instructor's first aid certificate, followed by 52 hours of classroom instruction and 64 hours of practical experience in a hospital emergency room. Recruitment is based on neighborhood organizations, personnel associations, company newspapers, etc.

2. The home nursing program is conducted through the Red Cross. A registration card is offered each graduate of the Home Nursing Course, who, if interested, completes it and is given a hospital assignment based on geographic considerations and personal preference.

3. Feeding teams are more closely related to emergency welfare responsibility, and if undertaken, should be coordinated with welfare authorities. City A has recruited and registered 1,000 people in 32 teams. The teams were recruited largely through Parent-Teacher Associations and assigned to a school at or near an auxiliary hospital location.

G. COORDINATION BETWEEN HEALTH AND MANPOWER AUTHORITIES

1. Respective Responsibilities

Local health manpower planners should have a clear understanding of the respective responsibilities of health officials and manpower officials for emergency manpower management. Defense Mobilization Order 8540.1 issued by the Office of Emergency Planning (see Appendix) gives the *List of Health Manpower Occupations*. This list will appear in the National Plan for Emergency Preparedness as part of Chapter 4, Health. OEP will allocate this health manpower among three claimant agencies: The Emergency Health Service of the Department of Health, Education, and Welfare for civilian health, Department of Defense for military health, and Department of State for international health. Each agency will be responsible for management of the manpower allocated to its use. At the Federal level, Emergency Health Service officials will be responsible for the distri-

bution and utilization of civilian health manpower to meet interstate and interregional needs. State and community health officials are similarly responsible for the management of health manpower to meet the needs of their respective jurisdictions.

Health officials at each level will rely on the official manpower agency for the administrative actions (e.g., recruitment, referral, control, wage and salary stabilization) necessary to the health manpower program. Manpower officials are responsible for the recruitment, referral and utilization of all other manpower to meet civil defense and mobilization needs. At the local level, manpower officials will allocate available workers (except health manpower) between defense and essential civilian activities according to priorities determined by the mayor, his counterpart, or higher officials. Health authorities will have to compete with other essential activities of the same, or higher, priority for available clerical, maintenance, dietary and other workers.

2. Local Coordination

The local EHS should take the initiative in coordinating its emergency manpower plans with local manpower officials—usually the manager and staff of the State Employment Security office. It should be mutually understood that health organization employees and preemergency trained volunteers are considered to be “preassigned” to the health mission. They would not be required to transfer to nonhealth work unless to utilize a higher skill in a more critical occupation. Conversely, health officials should be prepared to release workers more critically needed elsewhere or when no longer needed for the health mission.

3. Manpower Office Role in Lay Personnel Recruitment

As soon as assignments of professional personnel and health activity employees have been made and before undertaking a program to recruit lay personnel, the EHS Chief, or a representative of the advisory committee, should meet with manpower officials to acquaint them with the manpower needs still unmet after assignment of registrants and employees; to secure their advice and cooperation in any program to recruit and assign volunteers with lay skills; and to decide upon emergency procedures for notifying the manpower agency of health needs and for receiving referrals. An example of such procedures might be an agreement that the manpower office would refer certain categories of health manpower—such as physicians or sanitary engineers—to the control center for evaluation and placement by health authorities according to special abilities. Other categories (or all categories) of health and supporting manpower might be referred to operating units on the basis of individual job orders or to a health representative stationed in the employment office as a focal point for all health requirements and referrals.

H. TRAINING

The greater the disparity between available manpower and anticipated requirements, the more evident will become the need for training. The professional organizations which have participated in the recruitment and assignment program should be encouraged to sponsor training programs for and by their members.

1. Professional Material

Independently or in cooperation with Federal civil defense agencies, many of the national offices of these professional organizations have developed excellent material on the role of their members in national disaster. Some of these organizations may have available at their national headquarters bibliographies or reprints of related articles which have appeared in their official publications.

2. Suggested Courses

American National Red Cross first aid and home nursing courses and the Medical Self-Help course are available to most communities and should be used as a foundation for emergency health training. All employees and volunteers who will be engaged in health services should be encouraged to take one or more of these basic courses. The medical and nursing professions should take an active part in the presentation of such courses. Hospital administrators should arrange for the courses to be given at the hospital for nursing personnel, social workers, technicians, therapists, members of the hospital auxiliary and other assigned volunteers. Advanced training for a higher degree of proficiency might be provided, as in the City A Medical Aide program. Canada trains selected graduates of home nursing courses for emergency service through a Hospital Experience Program consisting of 44 hours of supervised in-hospital duties. Hospitals, medical societies or other professional organizations also might sponsor courses for allied health workers—veterinarians, dentists, optometrists, podiatrists, pharmacists, etc.—on how the skills of their individual health disciplines can be used most effectively under disaster conditions. Persons assigned to set up and operate Emergency Treatment Stations or PDH's should train as a team in practice exercises.

3. Other sources of Training Materials

DHEW Regional Health Mobilization Representatives, who can be contacted through State Health Departments, will furnish, on request, the

Public Health Service List of Available Training Literature, Bibliography Relating to Disaster Nursing, and Selected References for the Environmental Health Worker on Emergency Sanitation Procedures for Natural and National Disasters. These publications suggest additional sources of materials for developing training courses to prepare people not ordinarily accustomed to working together to function as an effective emergency team.

APPENDIX A

DEFENSE MOBILIZATION ORDER 8540.1

1. *Purpose and Authority.* This Order issues the List of Health Manpower Occupations in accordance with the authority contained in Executive Order No. 11001, dated February 16, 1962 (27 F.R. 1534), which assigns to the Secretary of Health, Education, and Welfare, emergency preparedness functions to include development of preparedness programs covering civilian health manpower. It provides further for the issuance of the List of Health Manpower Occupations by the Director of the Office of Emergency Planning after agreement by the Secretary of Labor and the Secretary of Health, Education, and Welfare.

2. *Definitions.* Executive Order No. 11001 defines health manpower as "physicians (including osteopaths), dentists, sanitary engineers, registered professional nurses; and such other occupations as may be included in the List of Health Manpower Occupations."

3. *Responsibilities.* Executive Orders No. 11000 and No. 11001 assign civilian manpower mobilization planning responsibilities to the Department of Labor and civilian health manpower mobilization planning responsibilities to the Department of Health, Education, and Welfare.

The Department of Health, Education, and Welfare, therefore, and appropriate State and local health officials have the primary responsibility for planning the organization, training, and utilization of civilian health manpower. The facilities of the Department of Labor and its affiliated State employment agencies will be utilized in carrying out the health program (e.g., recruitment, referral, and other manpower measures).

The skills identified in the attached List of Health Manpower Occupations are those which will be immediately required for the provision of essential emergency public health and medical services. Persons possessing the listed skills and allocated by appropriate officials to meet nonmilitary requirements will be made available to health services. However, as health hazards are brought under control and medical care loads permit, health officials will release for utilization in other essential activities the health manpower that is no longer critically needed. Following the postattack period, during which survival of the population is the preeminent consideration, Federal health and manpower officials will review the List and make recom-

mendations to the Director of the Office of Emergency Planning for appropriate revisions.

Supporting manpower, integral to health operations, e.g., hospital, sanitation, and laboratory helpers, and engineering, clerical, food service and custodial personnel, is not listed. Such civilian manpower employed at the time of attack by a medical facility or laboratory, or governmental health agency, will, if not ordered to military service, remain with the employing organization. All others will be provided according to priorities established by the manpower agency or ranking governmental official.

4. *Effective Date.* This Order is effective the date of issuance.
Dated: March 11, 1964.

EDWARD A. McDERMOTT,
Director, Office of Emergency Planning.

LIST OF HEALTH MANPOWER OCCUPATIONS ¹

<i>Occupational Title</i>	<i>Department of Labor Occupational Code No.</i>	<i>Occupational Title</i>	<i>Department of Labor Occupational Code No.</i>
Audiologist ² -----	0-39. 925	Natural Scientists—Continued	
Biochemist-----	0-07. 02	Histopathologist-----	0-35. 37
Clinical Radioisotope Techni- cian-----	(³)	Medical Bacteriologist-----	0-35. 33
Dental Hygienist-----	0-50. 07	Parasitologist, Medical-----	0-35. 31
Dental Technician (Bus. Serv.)--	0-50. 06	Pharmaceutical Bacteriolo- gist-----	0-35. 33
Dentist-----	0-13	Pharmacologist-----	0-35. 34
Food and Drug Inspector (Govt. Serv.)-----	0-95. 11	Public Health Bacteriologist--	0-35. 33
Health Physicist-----	(⁴)	Veterinarian Bacteriologist ⁶ ---	0-35. 33
Medical Physiologist-----	0-26. 50	Nurse Aide (Med. Serv.)-----	2-42. 20
Medical Record Librarian-----	0-23. 25	Nurse, Licensed Vocational-----	0-52. 83
Medical Technician (Med. Serv.)-----	0-50. 01	Nurse, Practical-----	2-38. 20
Medical Technologist (Med. Serv.)-----	0-50. 01	Nurse, Professional-----	0-33
Bacteriology Technician-----	0-50. 01	Occupational Therapist-----	0-32. 04
Biochemistry Technician-----	0-50. 01	Optometrist-----	0-39. 92
Bloodbank Technician-----	0-50. 01	Orderly (Med. Serv.)-----	2-42. 10
Cytology Technician-----	0-50. 01	Orthopedic Technician-----	5-09. 410
Hematology Technician-----	0-50. 01	Osteopathic Physician-----	0-39. 96
Parasitology Technician-----	0-50. 01	Pharmacist (Prof. and Kin- dred)-----	0-25. 10
Serology Technician-----	0-50. 01	Podiatrist ⁹ -----	0-39. 901
Tissue Technician-----	0-50. 01	Psychologist, Clinical ⁷ -----	0-36. 22
Virology Technician-----	0-50. 01	Physicians and Surgeons-----	0-26
Midwife-----	2-38. 20	Physical Therapist (Med. Serv.)-----	0-52. 00
Natural Scientists (N.E.C.)-----	0-35	Sanitarian ⁸ -----	0-39. 976
Anatomist (Prof. and Kin- dred)-----	0-35. 36	Sanitary Engineer-----	0-16. 01
Biophysicist ⁵ -----	0-35. 49	Social Worker, Medical-----	0-27. 20
Dairy Bacteriologist-----	0-35. 33	Social Worker, Psychiatric-----	0-27. 20
Food Bacteriologist-----	0-35. 33	Speech Pathologist-----	0-32. 07
Hematologist-----	0-35. 38	Superintendent, Hospital (Med. Serv.)-----	0-99. 84
		Veterinarian ⁶ -----	0-34
		X-ray Technician (Med. Serv.)--	0-50. 04

¹ Includes students, trainees, and interns whose training or education leading to any of the indicated skills is sufficiently advanced to qualify them to contribute to the technical tasks of providing health services.

² Unpublished definition and code.

³ Coding and nomenclature not yet received from Department of Labor.

See footnotes on following page.

Health Physicist. Devises and directs a research training and monitoring program to protect plant personnel from radiation hazards. Conducts research to develop inspection standards, radiation exposure limits for personnel, safe work methods, and decontamination procedures and tests surrounding areas to assure that releases to environment are not in excess of permissible radiation standards. Designs or modifies health physics equipment, such as detectors and counters to improve radiation protection. Assists in developing standards of permissible concentrations of radioisotopes in liquids and gases. Directs testing and monitoring of equipment and recording of personnel radiation exposure data.

Requests special bioassay samples of individuals believed to be exposed. Consults with scientific personnel regarding new experiments to determine that equipment or plant design conforms to health physics standards for protection of personnel. Supervises radiation monitoring and directs monitoring of plant areas and work sites. Requisitions and maintains inventory of instruments. Records location and quantity of radioactive sources assigned to departments. Instructs personnel in principles, policies, rules, and regulations related to radiation hazards. Assigns film badges and dosimeters to personnel and recommends changes in assignment for health reasons. May advise public authorities on methods of dealing with radiation hazards and procedures to be followed in radiation incidents and assists in civil defense planning. Reports findings and recommends improvements in safety measures. A bachelor's degree with a major in physics, chemistry, engineering, or a biological science, plus at least one year of specialized training in health physics is required.

Biophysicist. Studies the physical principles of living cells and organisms, including mechanics, heat, light, radiation, sound, and electricity. Is trained in both physics and biology. May specialize, for example, in the field of radiobiology which includes such activities as the study and use of radiation and nuclear particles in the treatment of cancer or the use of atomic isotopes in discovering the transformation of substances in cells.

Veterinarian Bacteriologist. Though current planning provides that many veterinarians be utilized in casualty care and preventive medicine activities in the immediate postattack period, veterinarians will continue to be needed to perform services of a strictly veterinary nature after most of the human casualties have been cared for temporarily. Such veterinary activities will include protection of food animals against diseases and the effects of atomic, biological, and chemical warfare; meat and poultry inspection and supplementing food inspection forces for certain food processing plants, and food storage facilities.

Clinical Psychologist. Diagnoses mental and emotional disorders of individuals in clinics; hospitals, prisons, and other institutions and administers program of treatment. Interviews patient, studies medical and social case history, observes patient in play or other situations, and selects, administers, and interprets projective and other psychological tests to diagnose disorder and formulate plan of treatment. Treats psychological disorders to effect improved adjustment through psychodrama, play therapy, and other techniques of individual and group therapy. Selects approach to use in individual therapy such as directive, nondirective, and supportive therapy and plans frequency, intensity, and duration of therapy.

May collaborate with Psychiatrist; Pediatrician; Social Worker, Psychiatric; and other specialists in developing treatment programs for patients, based on analysis of clinical data. May instruct and direct students serving psychological internships in hospitals and clinics. May develop experimental design and conduct research in field of personality development and adjustment and on problems of diagnosis, treatment, and prevention of mental illness. May serve as consultant to social, educational, welfare and other agencies on individual cases or in evaluation, planning, and development of mental health programs. May specialize on one of the following: behavior problems, crime and delinquency, group therapy, individual diagnosis and therapy, mental deficiency, objective tests, projective techniques, and speech pathology. A Clinical Psychologist is identified as an individual who is working in the field of clinical psychology and who meets one of the following criteria: (1) is a diplomate in clinical psychology of the American Board of Examiners in Professional Psychology; (2) is a fellow of the Division of Clinical and Abnormal Psychology of the American Psychological Association; or (3) holds a Ph. D. degree in clinical psychology.

Sanitarian. Interprets and enforces sanitation laws and regulations to protect and promote public health. Inspects and investigates sanitation facilities and conditions in such places as dwellings, water supply and sewerage plants; recreational areas, industrial plants, barber shops, beauty salons, and food processing and serving establishments to determine compliance with standards. Takes samples of such materials as water, food, and air and performs or orders a variety of chemical, physical or biological tests for contamination. Formulates plans and oversees programs for insect and rodent extermination and control. Issues corrective notices and orders, and follows up on compliance. Collaborates with public health personnel in epidemiology survey, analyses, and control pro-

grams. Reviews and makes recommendations on sanitary laws and regulations. Plans, organizes and conducts training programs in sanitary practices for such personnel as food handling, pest extermination and recreational workers. Confers with governmental, community, industrial, and civil defense personnel and organizations to interpret and promote sanitation standards and practices. In some States, may be required to hold license or be registered. When employed by public health agency, is known as Public Health Sanitarian. In large public agencies, and in industry, may be designated according to specialization, as Food-and-Industrial Sanitarian (profess. & kin.) ; Housing Sanitarian (profess. & kin.) ; Milk Sanitarian (profess. & kin.).

⁹ *Podiatrist* (Medical ser.) 0-39.901. Chiropodist; orthopedic specialist. Diagnoses and treats diseases and deformities of human foot: Diagnoses foot ailments such as tumors, ulcers, fractures, skin or nail diseases, and congenital or acquired deformities, utilizing such medically accepted methods as urinalysis, blood tests, and X-ray analysis. Treats deformities such as flat or weak feet and foot imbalance by mechanical methods such as whirlpool or paraffin baths, or by electrical methods such as short wave and low voltage currents. Treats conditions such as corns, calluses, ingrowing nails, tumors, shortened tendons, cysts, and abscesses by surgical methods including suturing, medications, and administration of local anesthetics. Does not perform amputations of the foot. Corrects deformities by means of plaster casts and strappings. Makes and fits prosthetic appliances. Prescribes corrective footwear. Refers patients to Physician when symptoms observed in feet and legs evidence systemic disorders such as arthritis, heart disease, diabetes or kidney trouble. May treat bone, muscle and joint disorders and be known as Podiatrist, Orthopedic; children's foot diseases and be known as Podopediatrician, or perform surgery and be known as Podiatric Surgeon.

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Publications in the Health Mobilization Series are keyed by the following subject categories:

A—Emergency Health Service Planning

B—Environmental Health

C—Medical Care and Treatment

D—Training

E—Health Resources Evaluation

F—Packaged Disaster Hospitals*

G—Health Facilities

H—Supplies and Equipment

I—Health Manpower

J—Public Water Supply



*Formerly called Civil Defense Emergency Hospitals

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